UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,327	12/16/2003	Yun-Qing Shi	436/11	6129

27538 7590 03/08/2007

KAPLAN GILMAN GIBSON & DERNIER L.L.P.
900 ROUTE 9 NORTH
WOODBRIDGE, NJ 07095

EXAMINER	
ALLISON, ANDRAE S	
ART UNIT	**PAPER NUMBER**
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/737,327	SHI ET AL.	
	Examiner	Art Unit	
	Andrae S. Allison	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *March 19, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 27 is objected to because of the following informalities: The phrase "The storange medium" in the preamble of claim 27 on page 18, line 1 should read "The storage medium" because the word "storage" is not spelt correctly.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Section IV.C, reads as follows:

> While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be. In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.
>
> For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. Diehr, 450 U.S. at 187, 209 USPQ at 8 ("application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); Benson, 409 U.S. at 71, 175 USPQ at 676 (rejecting formula claim because it "has no substantial practical application").
>
> To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:
>
> The claimed invention "transforms" an article or physical object to a different state or thing.

The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Claims 14-26 and 42-52 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 14 and 41 recites the mere manipulation of data or an abstract idea, or merely solves a mathematical problem without a limitation to a practical application. A practical application exists if the *result* of the claimed invention is "useful, concrete and tangible" (with the emphasis on "result")(Guidelines, section IV.C.2.b). A "useful" result is one that satisfies the utility requirement of section.101, a "concrete" result is one that is "repeatable" or "predictable", and a "tangible" result is one that is "real", or "real-world", as opposed to "abstract" (Guidelines, section IV.C.2.b)). Claims 14 and 41 merely manipulates data without ever producing a useful, concrete and tangible result. The preamble of claims 14 and 41 suggests that the claim is an apparatus and recites the limitation of a processor, however, the steps outline after the preamble clearly only manipulates data, and does not produce any tangible results, therefore, render claims 14 and 41 non-statutory.

In order to for the claimed product to produce a "useful, concrete and tangible" result, recitation of one or more of the following elements is suggested:

- The manipulation of data that represents a physical object or activity transformed from outside the computer.
- A physical transformations outside the computer, for example in the form of pre or post computer processing activity.

- A direct recitation of a practical application;

Applicant is also advised to provide a written explanation of how and why the claimed invention (either as currently recited or as amended) produces a useful, concrete and tangible result.

Claims 15 - 26 and 42-52 are being rejected as incorporating the deficiencies of claims 26 and 41 upon which each respective claim depends.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 27 and 53 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 27 and 53 define

software embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed software can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claims to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims are rejected under 35 U.S.C. 103(a) as being unpatentable Tian (NPL Document tilted: "Wavelet-based reversible watermarking for authentication") in view of Goljan el al (NPL Document tilted: "Distortion-Free Data Embedding for Images").

As to independent claim 1, Tian discloses a method (wavelet-based reversible watermarking for authentication, see title), comprising: subjecting an original, pixel domain image to an Integer Wavelet Transform (IWT) to obtain a matrix of wavelet coefficients (page 679, [p][003], line 3); selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients; compressing the at least one selected bit plane to produce free space in the at least one selected bit plane (see page 686, [p][003], lines 1-12, where the bit streams are subject to JBIG2 compression); embedding hidden data in the free space of the at least one compressed bit plane (see page 687, [p][001], lines 1-30, where the compressed bitstream is embedded in the integer wavelet domain); and subjecting the at least one embedded bit plane and the other bit planes to an Inverse IWT to produce a marked pixel domain image (see page 689, [p][001], lines 1-4, where inverse integer wavelet transform is performed on the image).

However, Tian does not disclose expressly selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients. Goljan disclose a method for distortion-free data embedding (see title) that includes the step of selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients (see page 29, [p][002], lines 1-11, where different bit planes including bit planes between the significant bit plane and the most significant bit plane are selected for compression).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the teaching of Tian with the teaching of Goljan to select a bit plane, compress the bit plane so that payload and the compressed bit plane can be inserted into the same bit plane (page 28, [p][002], lines 6-11) for high capacity data embedding that is distortion-free or lossless (see abstract).

As to claim independent claim 28, Tian discloses an apparatus, comprising: the means for subjecting an original, pixel domain image to an Integer Wavelet Transform (IWT) to obtain a matrix of wavelet coefficients is Wavelet transform, see Fig 4; the means for selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients; the means for compressing the at least one selected bit plane to produce free space in the at least one selected bit plane is JIB2, see Fig 4; the means for embedding hidden data in the free space of the at least one compressed bit plane is embed, see Fig 4; and the means for subjecting the at least one embedded bit plane and the other bit planes to an Inverse IWT to produce a marked pixel domain image is authentication, see Fig 7.

However, Tian does not disclose expressly the means for selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients. Goljan disclose a method for distortion-free data embedding (see title) that includes the means for selecting at least one bit plane between a least significant bit plane and a most significant bit plane of the matrix of wavelet coefficients (see page 29, [p][002], lines 1-11). At the time of the invention, it

would have been obvious to a person of ordinary skill in the art to have combined the references for the reasons stated above.

As to independent claim 29, all the limitations are discussion above except "decompressing the at least one bit plane". Tian does not expressly disclose the method further decompressing the at least one bit plane. Goljan discloses a method for distortion-free data embedding (see title) that includes the step of decompressing the at least one bit plane (see page 30, [p][001], lines 1-2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the references for the reasons stated above.

As to independent claim 53, all the limitations are discussion above except "decompressing the at least one bit plane". Tian does not expressly disclose the method further decompressing the at least one bit plane. Goljan discloses a method for distortion-free data embedding (see title) that includes the step of decompressing the at least one bit plane (see page 30, [p][001], lines 1-2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the references for the reasons stated above.

As to independent claim 54, all the limitations are discussion above except "means for decompressing the at least one bit plane". Tian does not expressly disclose the method further decompressing the at least one bit plane. Goljan discloses a method

for distortion-free data embedding (see title) that includes the means decompressing the at least one bit plane (see page 30, [p][001], lines 1-2). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the references for the reasons stated above.

As to claim 2, note the discussion above, Goljan teaches the method, wherein the at least one selected bit plane is taken from a range of about a 2nd bit plane and a 6th bit plane of the matrix of wavelet coefficients (see page 29, [p][002], lines 1-11, where bit planes are selected from the low bit plane through to the higher bit plane which is inclusive of the bit plane specified by applicant).

As to claim 3, note the discussion above, Goljan teaches the method, wherein the at least one selected bit plane is taken from a range of about a 3rd bit plane and a 6th bit plane of the matrix of wavelet coefficients (see page 29, [p][002], lines 1-11, where bit planes are selected from the low bit plane through to the higher bit plane which is inclusive of the bit plane specified by applicant).

As to claim 4, note the discussion above, Goljan teaches the method, wherein the at least one selected bit plane is taken from a range of about a 4th bit plane and a 6th bit plane of the matrix of wavelet coefficients (see page 29, [p][002], lines 1-11, where bit planes are selected from the low bit plane through to the higher bit plane which is

inclusive of the bit plane specified by applicant).

As to claim 5, Tian teaches the method, wherein the step of compressing the at least one selected bit plane includes using an entropy coding algorithm to produce the free space (see page 686, [p][002], lines 1-12).

As to claim 6, Tian teaches the method, wherein the entropy coding algorithm arithmetic lossless coding (e.g. JBIG2, see page 686, [p][002], lines 1-12).

As to claim 7, Tian teaches the method, wherein the entropy coding algorithm is JBIG lossless coding (see page 686, [p][002], lines 1-12 where JBIG2 lossless coding is done, however, note that JBIG coding can also be used, see page 681, [p][002], lines 1-9).

As to claim 8,note the discussion above, Goljan teaches the method, further comprising using a key (see Fig 1) to establish one or more parameters defining how the hidden data is embedded in the free space, wherein knowledge of the key is necessary to extract the hidden data from the free space (see page 32, [p][002-003]).

As to 30-35, note the discussion of claims 2-8 above.

5. Claims 9-10 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable Tian (NPL Document tilted: "Wavelet-based reversible watermarking for

authentication") in view of Goljan el al (NPL Document tilted: "Distortion-Free Data Embedding for Images") further in view of Hayashi et al (US Patent No.: 6,535,616).

As to claim 9, neither Tian nor Goljan disclose the method, further comprising embedding the hidden data in high frequency sub-bands of the selected bit plane. Hayashi discloses a method for embedding digital watermark information that includes the step of embedding the hidden data in high frequency sub-bands of the selected bit plane (column 9, lines 62-67). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Tian as modified by Goljan and Hayashi to embed hidden data in high frequency sub-bands so that the data cannot be easily extracted, thereby making the watermark robust to certain attacks.

As to claim 10, note the discussion above, Hayashi teaches the method, wherein the high frequency sub-bands are at least one of a LH.sub.1, a HL.sub.1 and a HH.sub.1 sub-band (see Fig 3 and Fig 4).

As to 36-37, note the discussion of claims 9-10 above.

6. Claims 11-13 and 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable Tian (NPL Document tilted: "Wavelet-based reversible watermarking for

authentication") in view of Goljan el al (NPL Document tilted: "Distortion-Free Data Embedding for Images") further in view of Stach et al (Pub No.: US 2004/0250078).

As to claim 11, neither Tian nor Goljan disclose the method further comprising modifying a histogram of the original image such that one or more locations at extremes of the histogram are empty prior to embedding the selected bit plane with the hidden data. Stach discloses a method of hiding auxiliary data that includes the step of modifying a histogram of the original image such that one or more locations at extremes of the histogram are empty prior to embedding the selected bit plane with the hidden data (see [p][0010], lines 1-8, where an embedded data reader analyze the statistical distribution (i.e. histogram) of an image signal). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the method of hiding auxiliary data to the wavelet-based watermarking method of Tian as modified by Goljan to compensate for offset and gain by analyzing the statistical distribution of the image to derive an estimate of quantization, those quantized estimate are also pass on to the reader and are used to restore the image signal after extraction ([p][0010], lines 1-14); therefore, the capacity of the host image signal is increased.

As to claim 12, note the discussion above, Stach teaches the method wherein: the histogram may be represented by points plotted in a Cartesian coordinate system in which discrete intensity levels exist along an ordinate axis and numbers of pixels having such intensity levels exist along an abscissa (see Fig 4); and the modification includes

moving any data plotted near extremes of the ordinate axis toward more moderate locations (note that quantization put the gray value in various bins, see Fig 4).

As to claim 13, note the discussion above, Stach teaches the method further comprising embedding information indicative of the movement of the data away from the extremes of the ordinate axis in the free space prior to subjecting the at least one embedded bit plane to the Inverse IWT (see [p][0011], lines 8-13, where data is embedding into the free space free up by quantization).

As to claims 38-40, note the discussion of claims 11-13 above.

7. Claims 14-26 and 41-52 are rejected under 35 U.S.C. 103(a) as being unpatentable Tian (NPL Document tilted: "Wavelet-based reversible watermarking for authentication") in view of Goljan el al (NPL- Document tilted: "Distortion-Free Data Embedding for Images") further in view of Sharma et al (US Paten No.: 6,385,329).

As to independent claim 14, this claim differs from claim 1 only in that claim 14 is apparatus whereas, claim 1 is method and the limitation a processor operating under the instructions of a software program are additively recited in the preamble. Neither Tian nor Goljan disclose a processor operating under the instructions of a software program. Sharma discloses a wavelet domain watermarking method (column 1, lines 44-60) that includes a processor (1231, see Fig 20) operating under the instructions of a software program (1237, module, see Fig 20).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Tian as modified by Goljan and Sharma to perform wavelet decomposition on an image signal and embed an auxiliary signal so that the auxiliary signal is substantially imperceptible (column 1, lines 42-50).

As to independent claim 27, this claim differs from claim 1 only in that claim 27 is storage medium whereas, claim 1 is method and the limitations, a storage medium, a software program and a processor operating under the instructions of the software program are additively recited in the preamble. Neither Tian nor Goljan disclose a storage medium, a software program and a processor operating under the instructions of the software program. Sharma discloses a wavelet domain watermarking method (column 1, lines 44-60) that includes a storage medium (1224, see Fig 20), a software program (1237, module, see Fig 20) and a processor (1231, see Fig 20) operating under the instructions of the software program. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the references for the reasons stated above.

As to independent claim 41, this claim differs from claim 27 only in that claim 41 is apparatus whereas, claim 27 is method and the limitation a processor operating under the instructions of a software program are additively recited in the preamble. Neither Tian nor Goljan disclose a processor operating under the instructions of a software program. Sharma discloses a wavelet domain watermarking method (column

1, lines 44-60) that includes a processor (1231, see Fig 20) operating under the instructions of a software program (1237, module, see Fig 20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the references for the reasons stated above.

As to independent claim 53, this claim differs from claim 27 only in that claim 53 is storage medium whereas, claim 27 is method and the limitations, a storage medium, a software program and a processor operating under the instructions of the software program are additively recited in the preamble. Neither Tian nor Goljan disclose a storage medium, a software program and a processor operating under the instructions of the software program. Sharma discloses a wavelet domain watermarking method (column 1, lines 44-60) that includes a storage medium (1224, see Fig 20), a software program (1237, module, see Fig 20) and a processor (1231, see Fig 20) operating under the instructions of the software program. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the references for the reasons stated above.

Claims 15-26 differ from claims 2-13 only in that claims 2-13 are method claims whereas, claims 15-26 are apparatus claims. Thus, claims 15-26 are analyzed as previously discussed with respect to claims 2-13 above.

Claims 42-52 differ from claims 2-13 only in that claims 2-13 are method claims whereas, claims 42-52 are apparatus claims. Thus, claims 42-52 are analyzed as previously discussed with respect to claims 2-13 above.

Conclusion

The prior art made part of the record and not relied upon is considered pertinent to applicant's disclosure.

Honsinger et al (US Patent No.:) is cited to teach a lossless recovery of an original image containing embedded data.

Kondo (US Patent No.:) is cited to teach a coding apparatus for embedding second data into a first data.

Sandford, II et al (US Patent No.: 5,778,102) is cited to teach a method for compression embedding.

Tian et al (Pub No.: US 2003/0149879) is cited to teach a reversible watermarking.

Noda et al (Pub No.: US 2002/0051559) is cited to teach an application of bit plane decomposition steganography to progressively compressed data.

Fridrick et al (Pub No.: US 2003/0081809) is cited to teach a lossless embedding of data in digital objects.

Hayashi (Pub No.: US 2002/0172398) is cited to teach an image processing apparatus, which efficiently perform image coding.

Meerwald et al (NPL Document titled: "A Survey of Wavelet-domain Watermarking Algorithms") is cited to teach an overview of the wavelet-based watermarking technique available today.

Vehel et al (NPL Document titled: "Wavelet packet based digital watermarking") is cited to teach a method for digital image watermarking based on the modification of certain subsets of the wavelet packet decomposition.

Kundur et al (NPL Document titled: "Digital Watermarking Using Multi-resolution Wavelet Decomposition") is cited to teach a novel technique for digital watermarking of still images based on the concept of multi-resolution wavelet fusion.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

February 21, 2007

A. A.

JOSEPH MANCUSO
SUPERVISORY PATENT EXAMINER